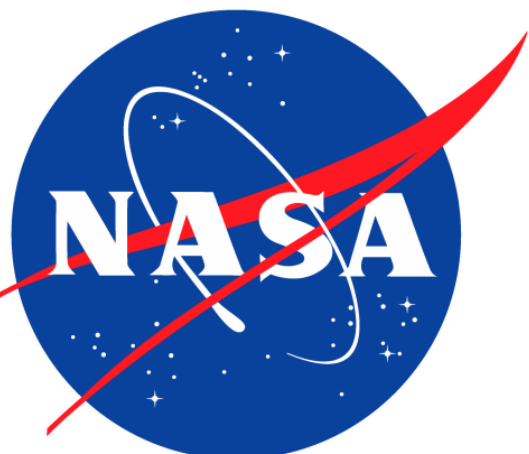


Transition and Assessment of LEO Nighttime and 24-Hour Microphysics Imagery to Support Nowcasting for Aviation at High Latitudes



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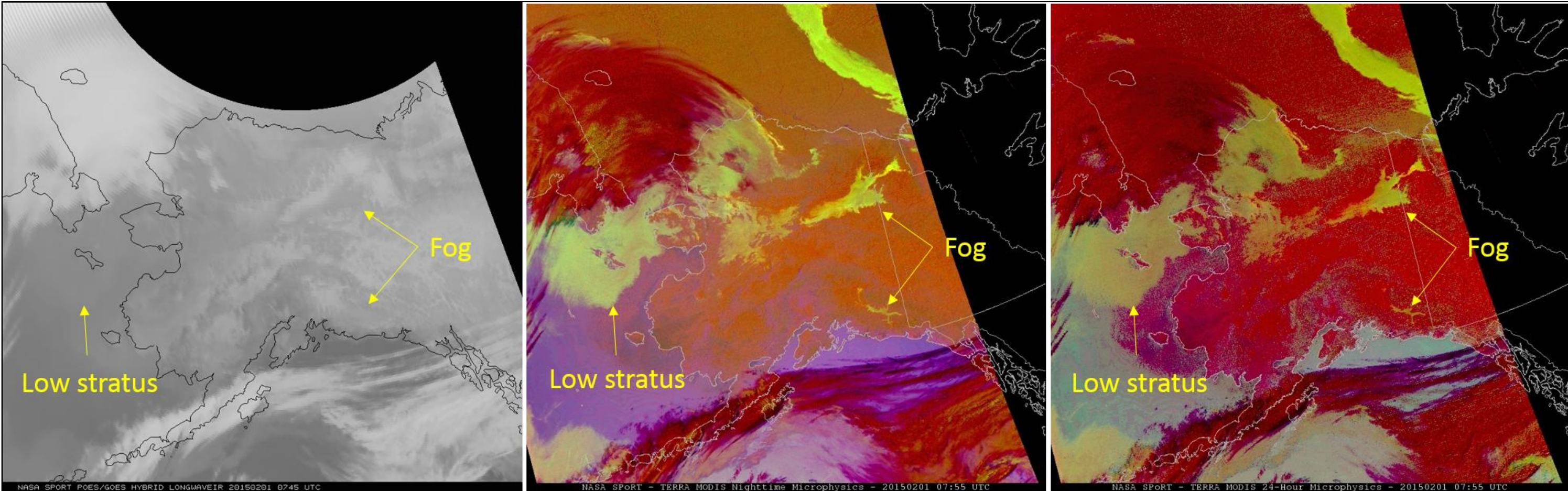


Purpose / Objective

- Assessment of Nighttime and 24-hr Microphysics RGB imagery in aviation operations with high latitude users.

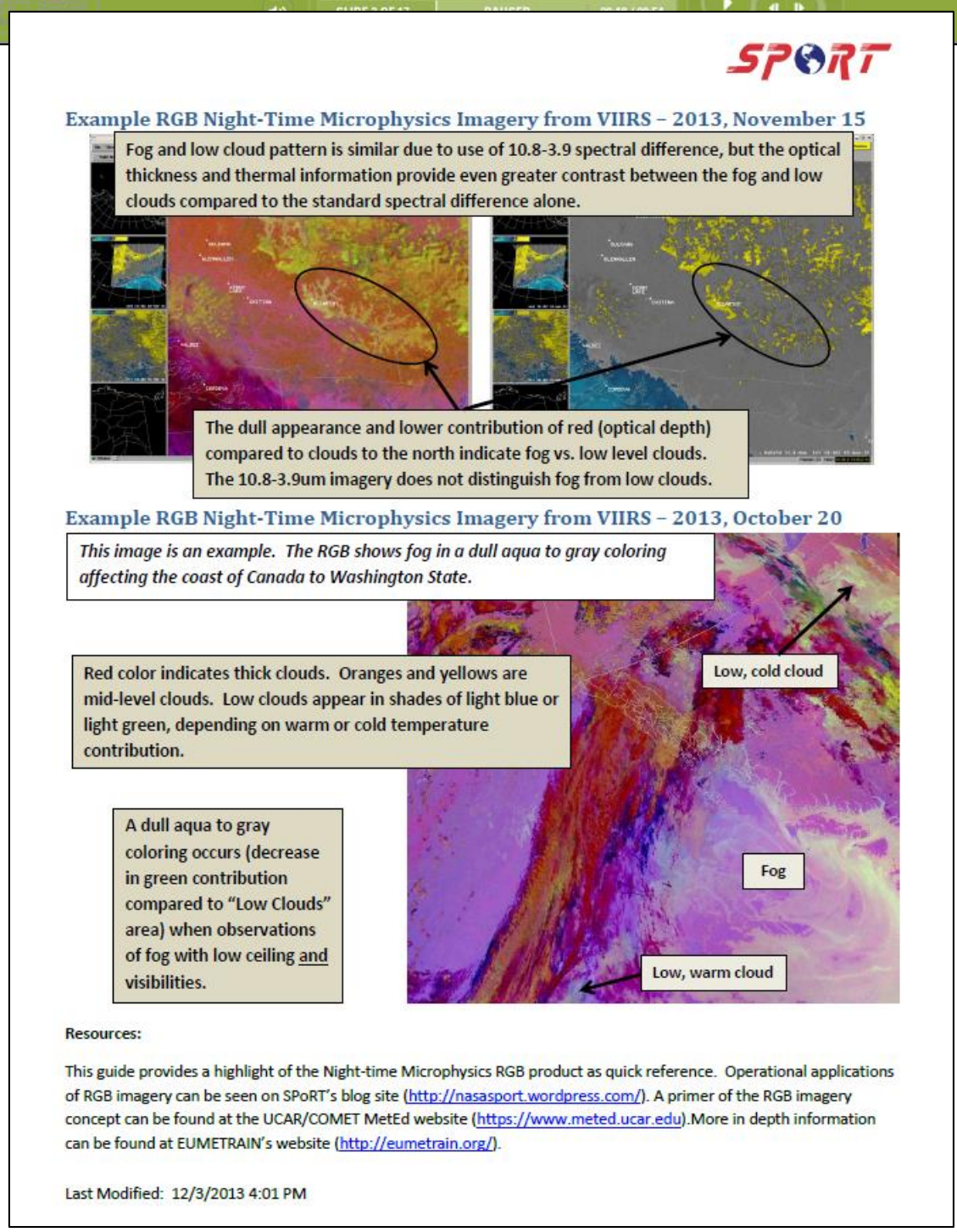
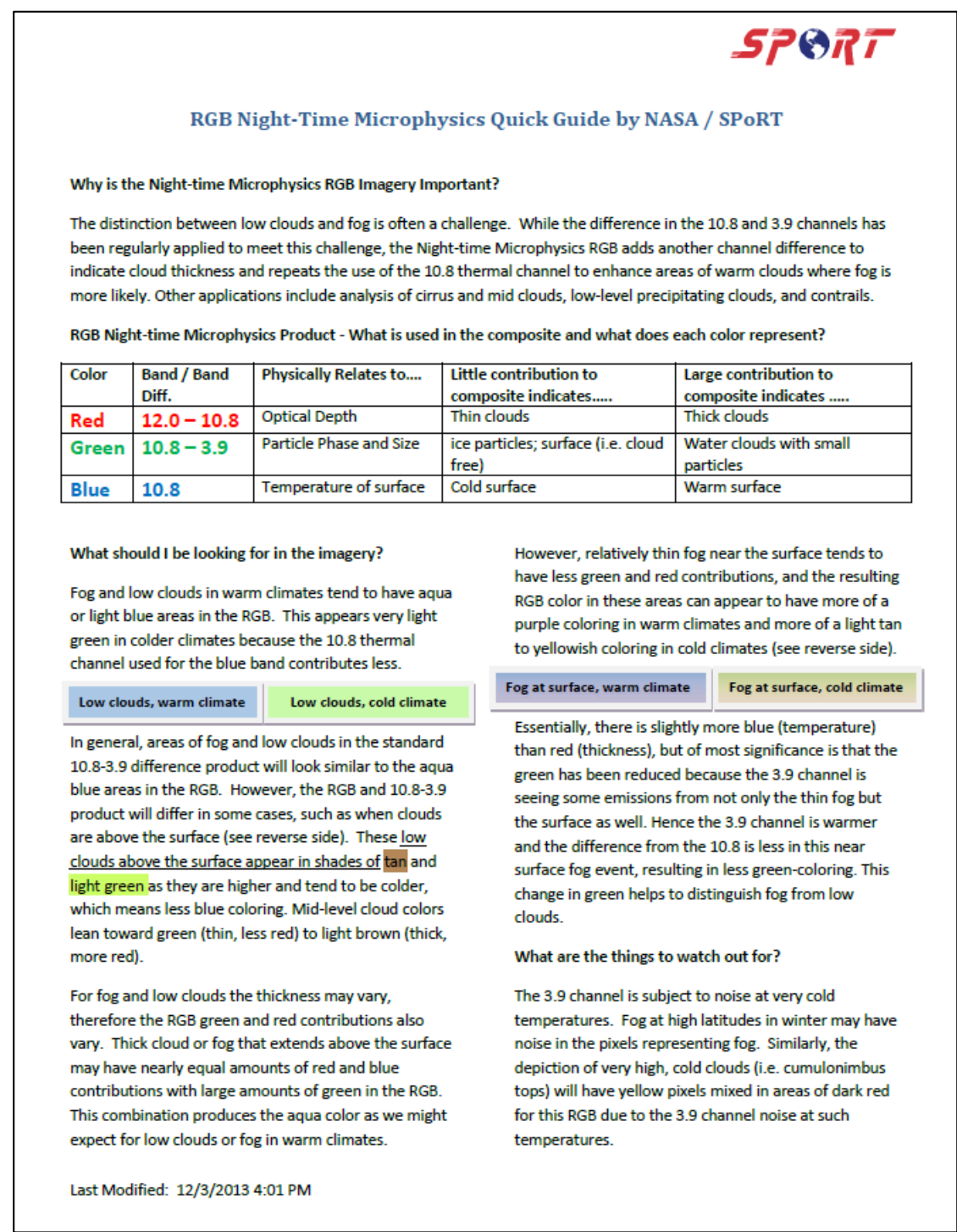
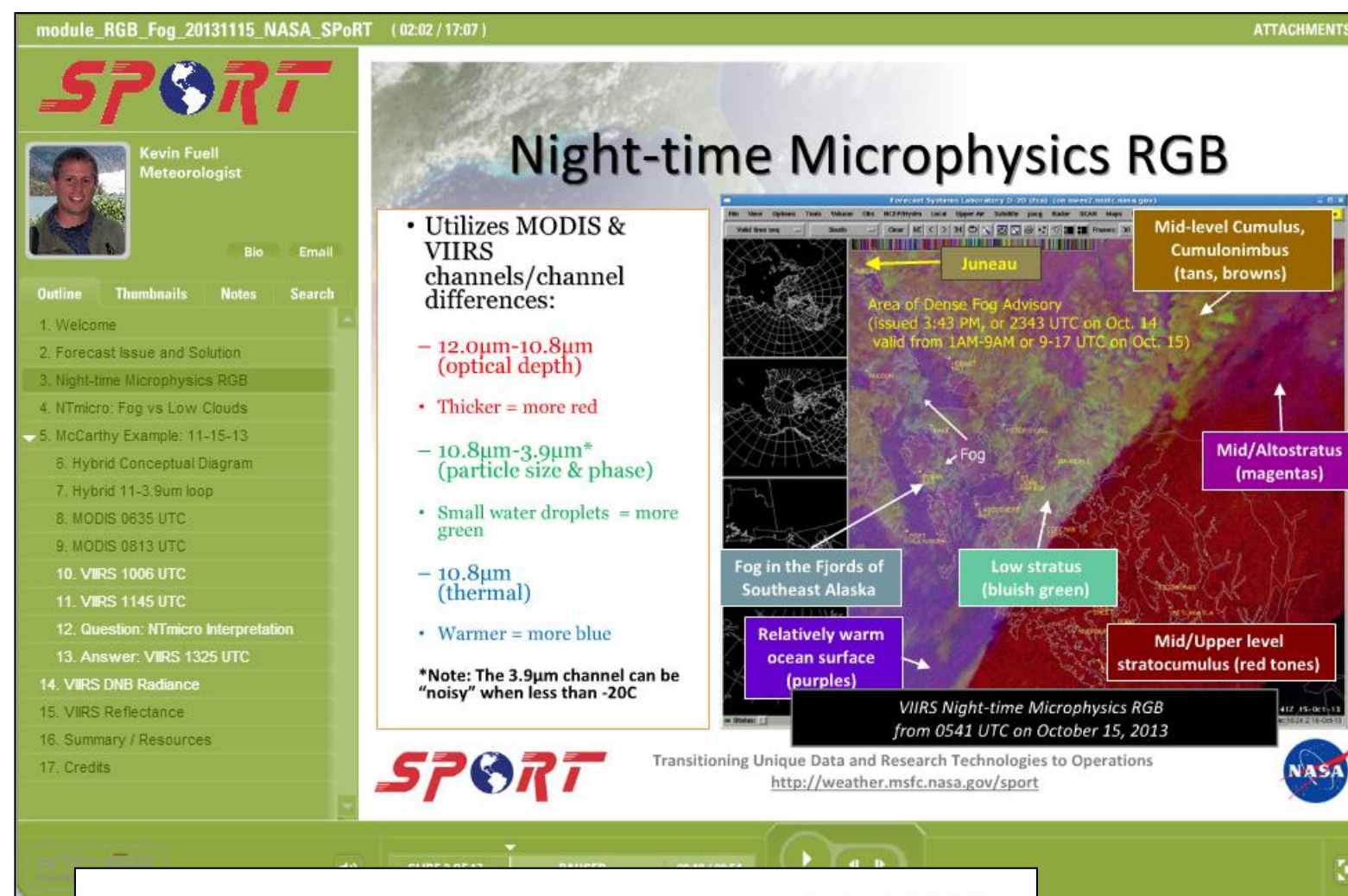
Benefits of LEO RGBs in Operations at High Latitudes

- Multi-spectral composite imagery (i.e. RGBs)
 - Efficient analysis of fog/low cloud for aviation nowcasts & short-term forecasts
- Fills observational void left by radar and in-situ resources
- Improved spatial resolution; Better viewing angle vs. GEO
- Introduce RGBs in preparation for future GOES-R and JPSS



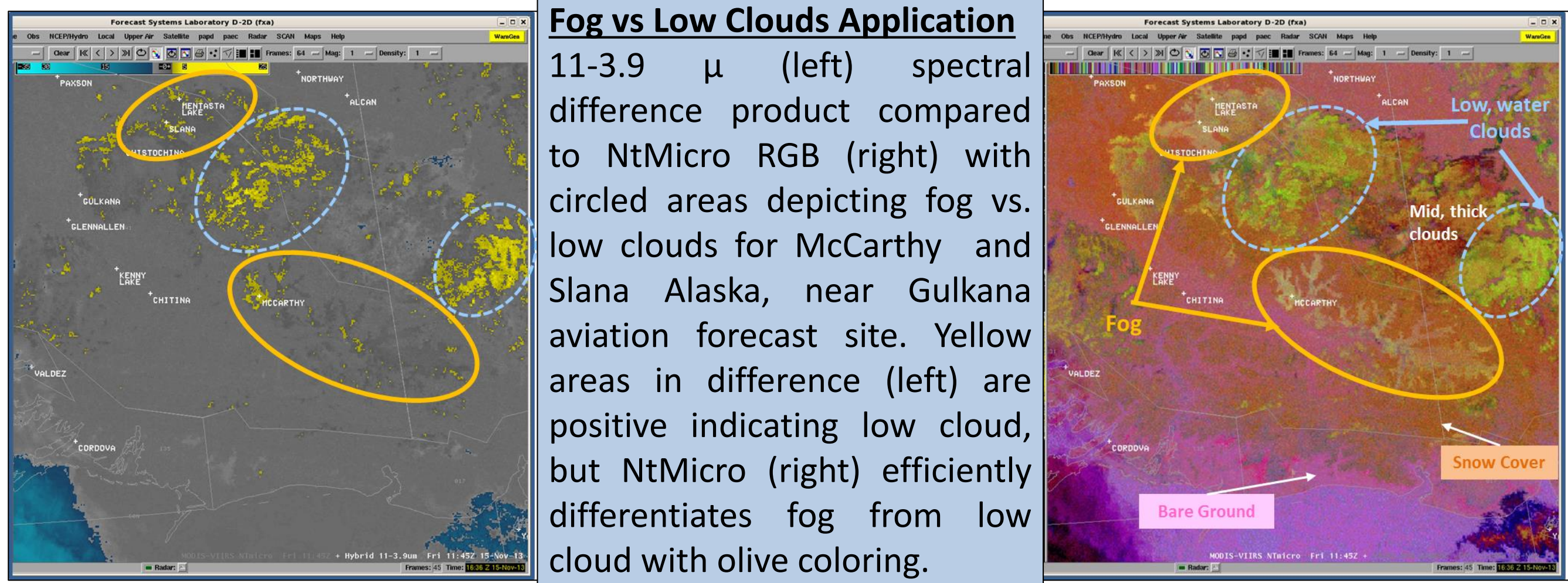
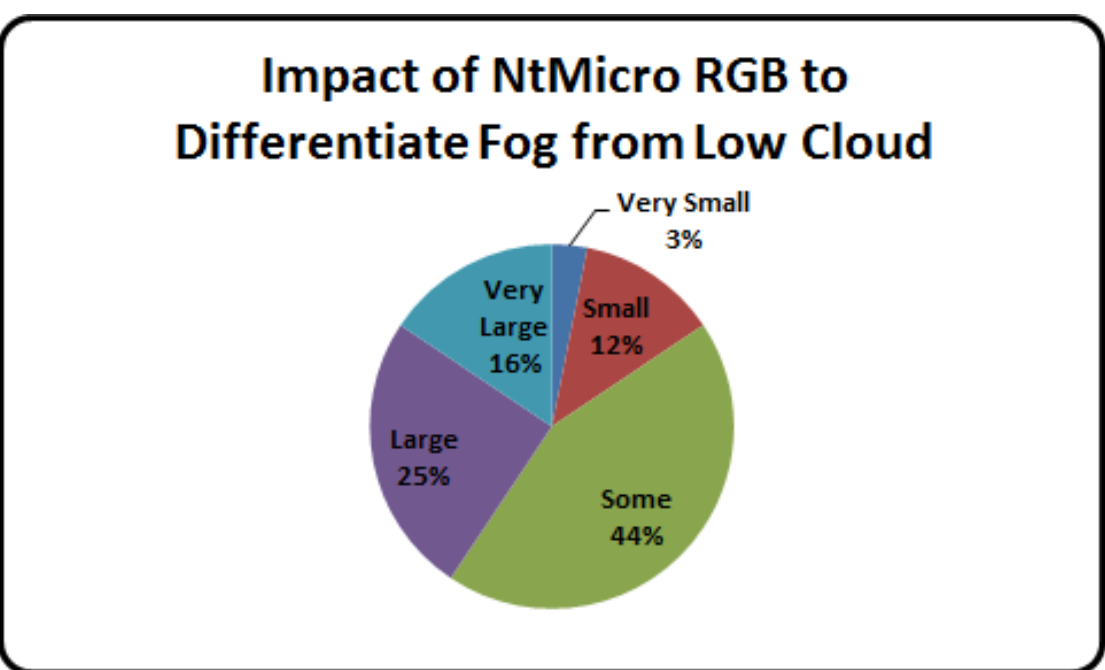
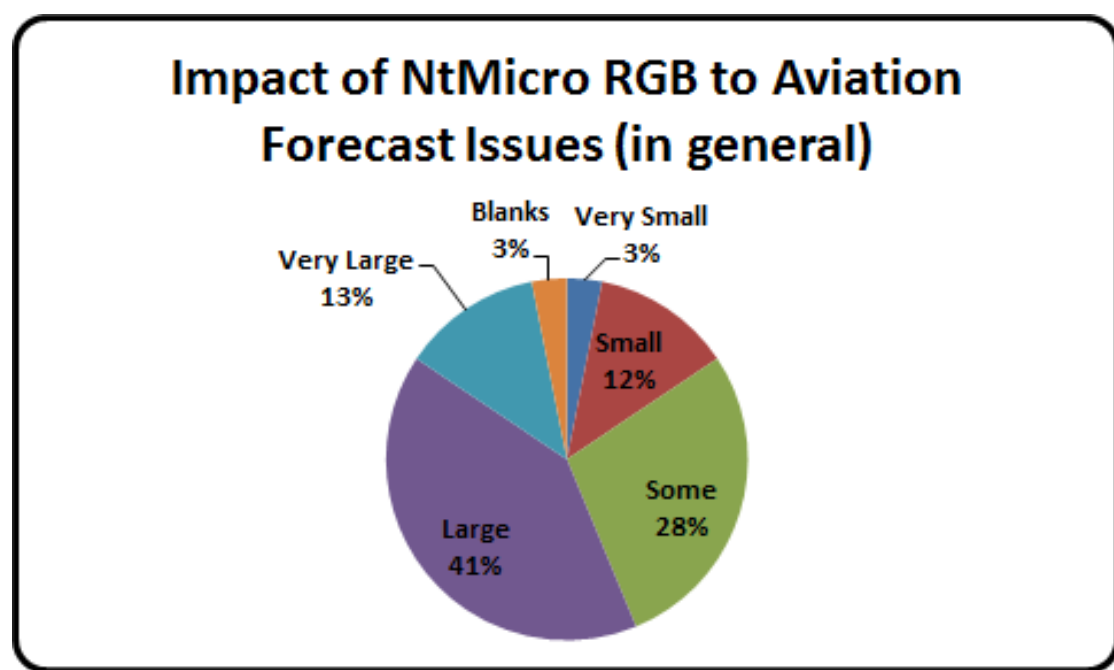
Training for Nighttime and 24-hr Microphysics

- Region specific modules
- “Quick Guides” for use in operations as reminder
- Reference to EUMETrain and UCAR/COMET



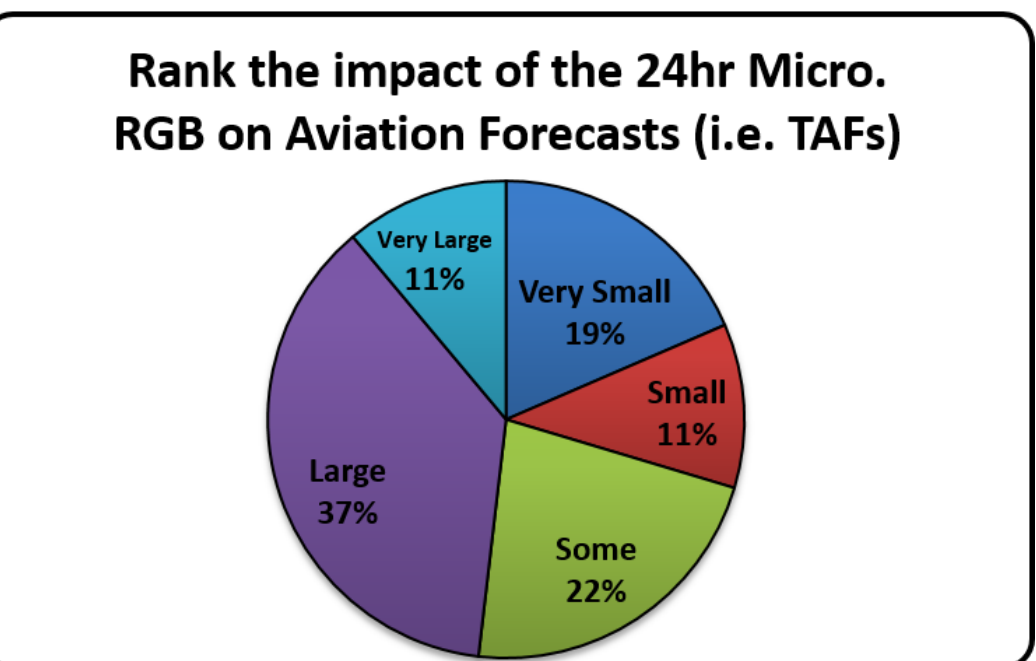
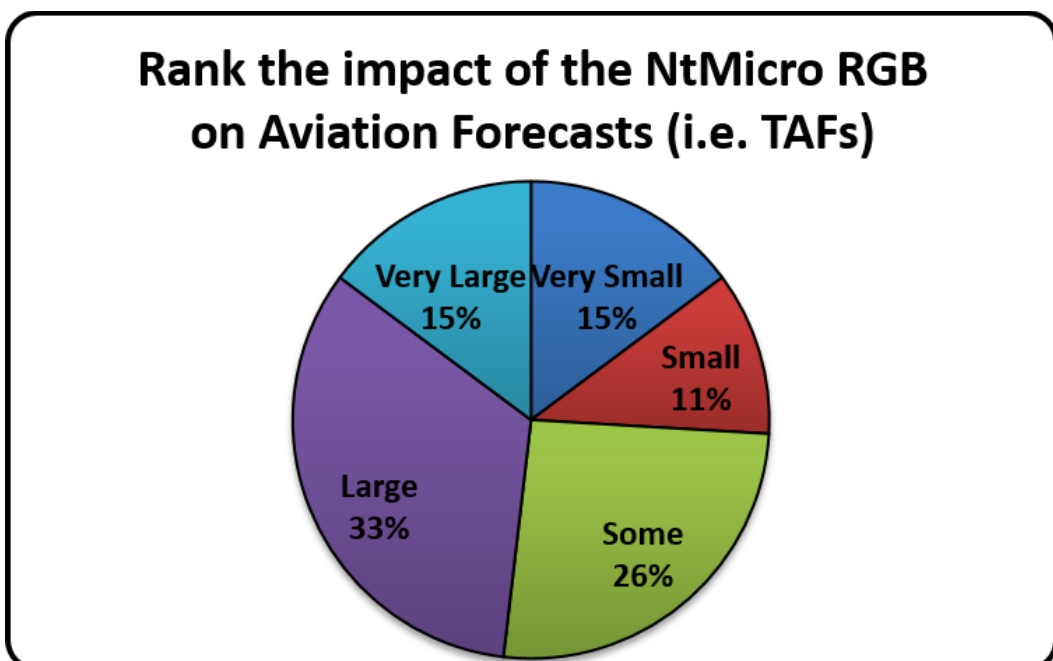
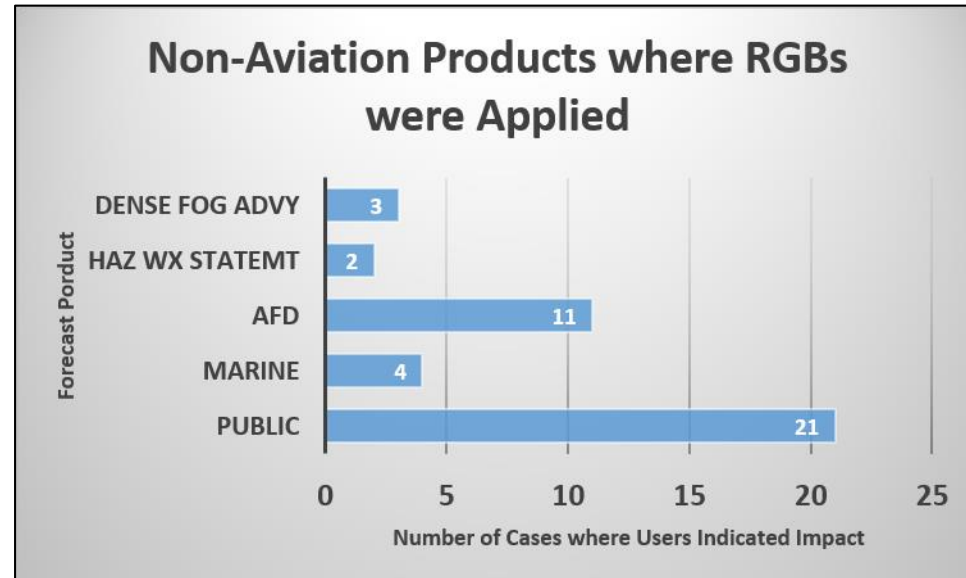
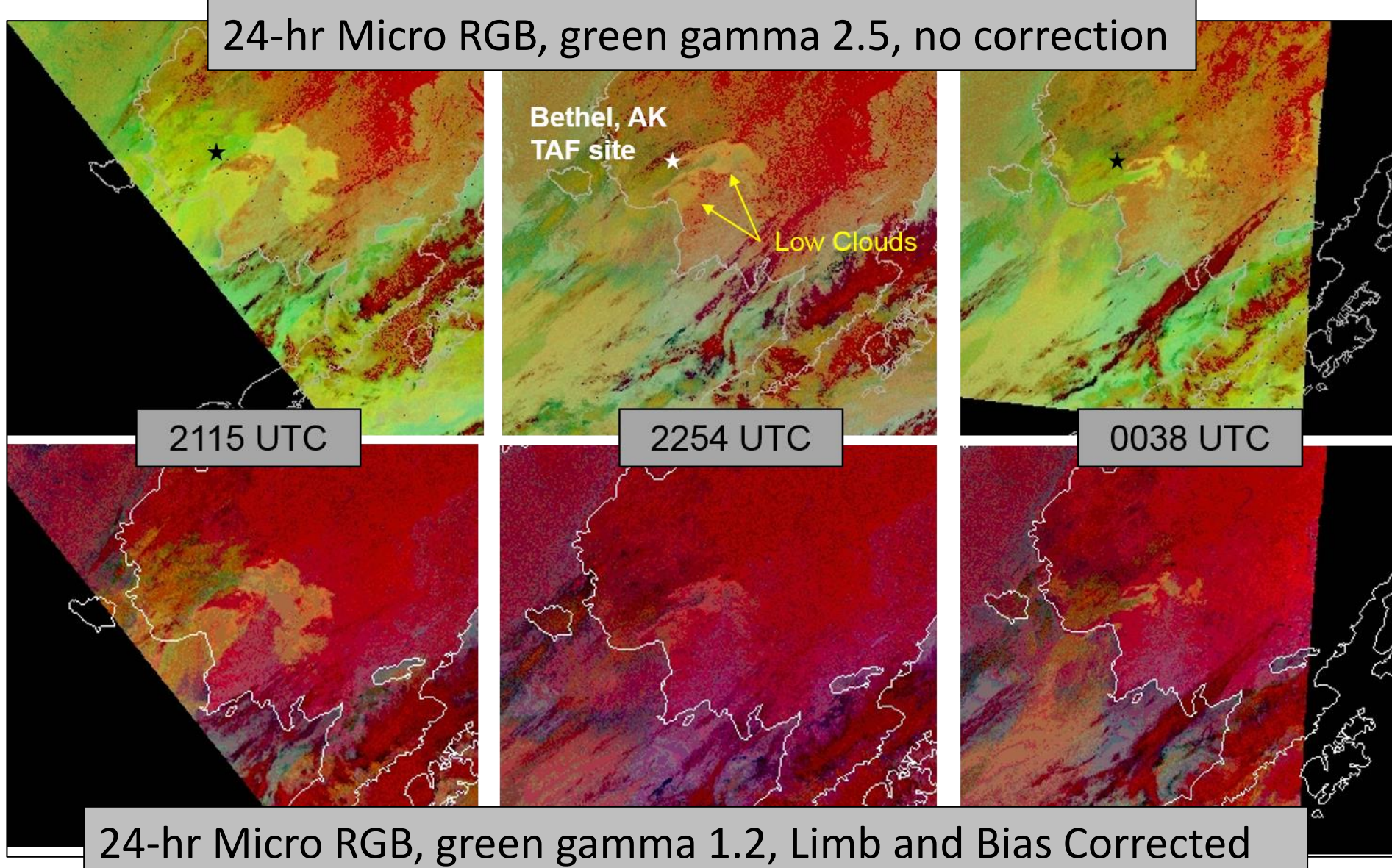
2013/14 Winter Assessment by High Latitude Forecasters

- 82% of events had impact from NtMicro RGB to operational aviation forecast products
- 41% indicated “Large” or “Very Large” impact using NtMicro RGB to differentiate fog from low clouds



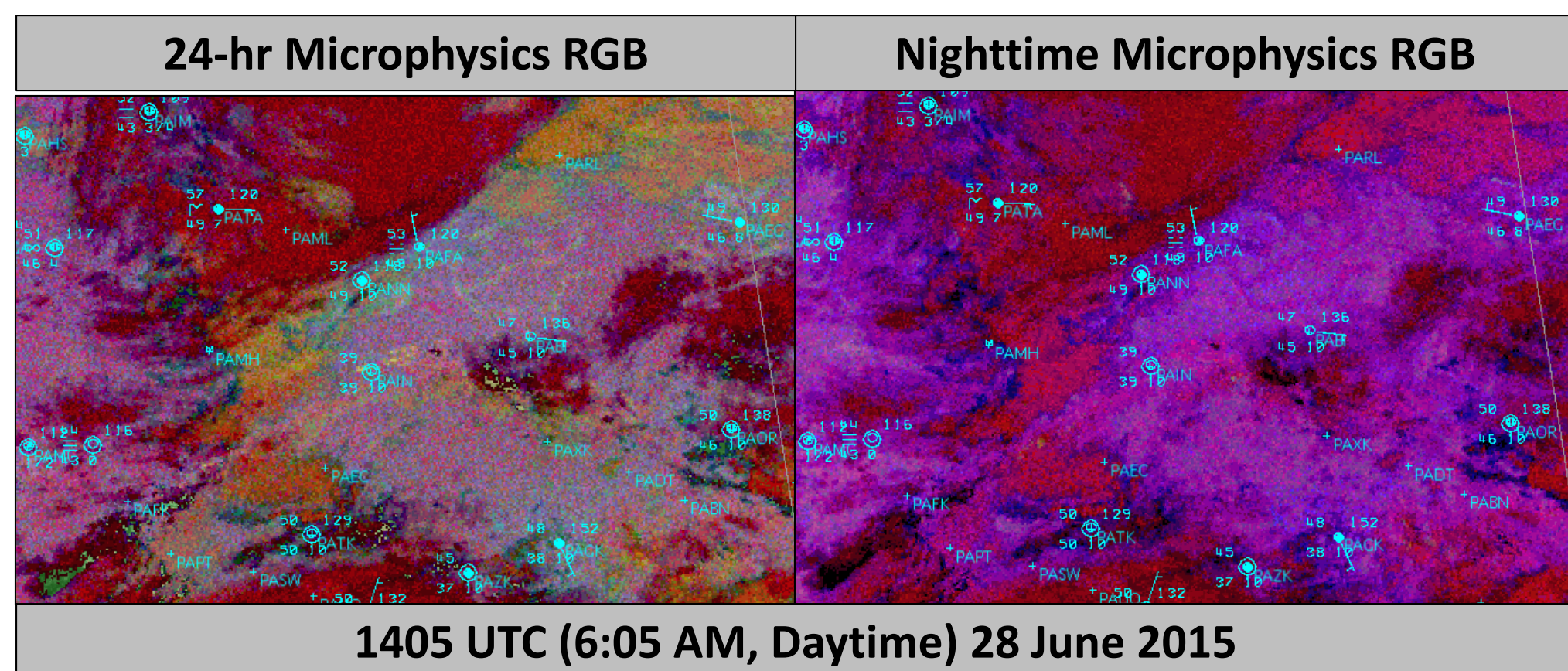
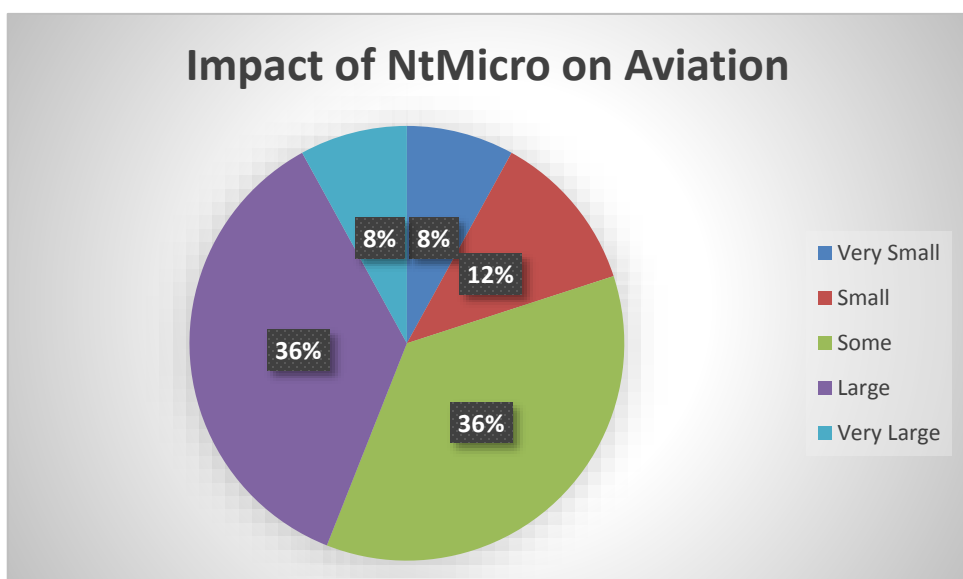
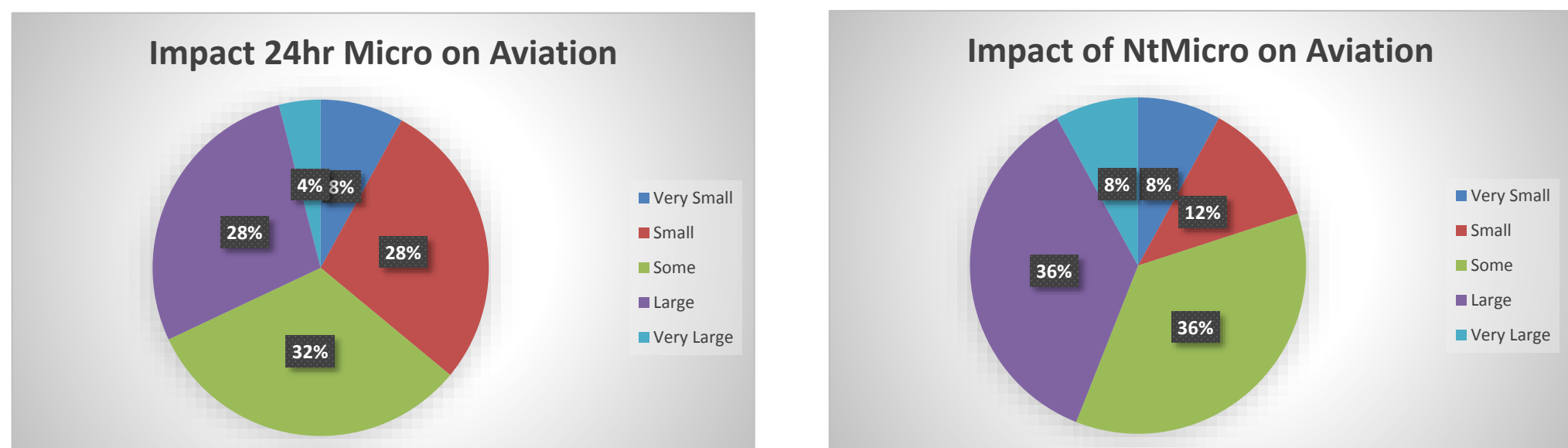
2014/15 Winter Assessment by High Latitude Forecasters

- 24-hr Micro. RGB introduced and compared to NtMicro.
- Nearly equal impact of 24-hr & NtMicro RGBs on Aviation
- RGBs applied many times to non-aviation forecasts



2015 Summer Assessment by High Latitude Forecasters

- Large amount of daytime, therefore NtMicro RGB less frequently useable.
- Can 24-hr Micro RGB fill the aviation need in summer?
 - Used different version of 24-hr Micro



Next Steps

- Use of MetOp and NOAA/POES satellites that have AVHRR imager
 - Can create several RGBs including NtMicro
 - Increases the number of passes to make more appealing for use at lower latitudes (GOES-R demo.)
- Adjustment of 24-hr Micro. RGB thresholds to better fit needs of high latitude users in winter when temperatures frequently reach below 0° C and snow/ice cover surfaces.
- Development of RGB that incorporates a derived quantitative “Cloud Property” such as cloud top pressure, phase, effective radius, etc. as either a color component or an additional piece of information within the RGB file.